

we are currently reviewing both the Part 21 and Part 94 technical rules, and anticipate issuing in the near future a proposal to update and consolidate these rules.

73. Use of Government Spectrum. The majority of commenting parties urge that government spectrum at 1710-1850 MHz and/or 3.6-3.7 GHz be made available to non-government users. AT&T says that public safety 2 GHz incumbent operators in spectrum allocated for unlicensed PCS applications should be given priority access to any spectrum in the 1710-1850 MHz band that becomes available as a result of negotiations with NTIA. Alcatel maintains that the Commission's decision not to pursue reallocation of the 3.6-3.7 GHz band limits the spectrum available and thus exacerbates the potential capacity problem of displaced 2 GHz incumbents.

74. As noted in the Further Notice, we are discussing with NTIA non-government access to the 1710-1850 MHz and 3.6-3.7 GHz bands. In August 1992, NTIA released a report, "Feasibility of Relocating Non-Government Fixed Systems into the 1710-1850 MHz Band," stating that there is sufficient spectrum in many areas of the United States to accommodate a limited number of non-government 2 GHz microwave links in the 1710-1850 MHz government band.²⁹ NTIA further stated that it will cooperate with the Commission to provide spectrum in the 1710-1850 MHz band for relocating fixed microwave links that cannot operate reliably at 6 GHz, establish technical rules and coordination procedures necessary to identify such links, evaluate the feasibility of relocation in the 1710-1850 MHz band, and if feasible, implement such relocation.³⁰ We will continue our discussions with NTIA, but the result is uncertain. We believe that the action taken today ensures that the spectrum needs of all potentially displaced 2 GHz users will be adequately met. However, if the 3.6-3.7 GHz band is made available, it will provide an additional resource that may lessen the costs of meeting these needs. Accordingly, we are continuing discussions with NTIA, and will issue progress reports as appropriate.³¹

²⁹ NTIA Report 92-286. This report was placed in the ET Docket No. 92-9 file.

³⁰ See Letter dated August 11, 1992, from the Assistant Secretary for Communications and Information, U.S. Department of Commerce, to the Chairman of the FCC. This letter accompanied the "NTIA Feasibility Report." The issue of priority access to the 1710-1850 MHz band by 2 GHz public safety incumbents is addressed in our companion Third Report and Order and Memorandum Opinion and Order.

³¹ We note that pursuant to PL 103-66, 107 Stat 312, enacted on August 10, 1993, the Secretary of Commerce must identify and transfer to the Commission not less than 200 megahertz of government spectrum for non-government use.

75. Summary. Our reallocations permit shared private and common carrier fixed microwave use of the 4, 6, 10, and 11 GHz bands, and our channelization plans are designed to accommodate displaced 2 GHz fixed licensees in the most efficient manner. We have chosen not to rechannelize the 4 GHz band in order to minimize the possibility of harmful interference to existing users of this band, and have chosen a compromise 1.25 MHz-based channel plan in the remaining bands in order to accommodate in the most desirable manner the needs of existing and future users of these bands. We believe this plan can optimally accommodate most displaced 2 GHz licensees, as well as ensuring that most existing equipment remains usable. The plan will permit flexibility for both microwave users and manufacturers and encourage a competitive market for the supply of equipment. Additionally, the coordination procedures and technical rules that we have adopted will promote fair and efficient use of the bands.

PROCEDURAL MATTERS

Final Regulatory Flexibility Analysis

76. Pursuant to 5 U.S.C. Section 603, an initial Regulatory Flexibility Analysis was incorporated in the Further Notice of Proposed Rule in ET Docket No. 92-9. Written comments on the proposals in the Further Notice, including the Regulatory Flexibility Analysis, were requested.

77. Need for and Objective of Rules. Our objective is to reaccommodate current 2 GHz common carrier and private fixed microwave licensees above 3 GHz with appropriate channelization plans and technical rules. Reaccommodation of these licensees is necessary to ensure that they can continue to provide equivalent service with comparable reliability.

78. Issues Raised by the Public in Response to the Initial Analysis. Many parties suggested modifications to the proposed reallocations, rechannelization plans, and technical rules, although not specifically to the initial regulatory flexibility analysis. As a result, we have modified our proposals as appropriate. For example, in the Further Notice we had proposed to use a 1.6 MHz-based channel plan in the 4, 6, and 10 GHz

All of the spectrum to be transferred must be below 5 GHz, and one-half must be below 3 GHz; not less than 50 megahertz of the 200 megahertz must be recommended for immediate reallocation within six months of the statute's enactment, 25 megahertz of which must be below 3 GHz. While it is possible that spectrum in the 1710-1850 MHz and 3.6-3.7 GHz bands may be used to satisfy this requirement, it would be premature to base our decision herein on that possibility.

bands, and a 10 MHz-based plan in the 11 GHz band; however, commenting parties have convinced us that the existing 20 MHz channel plan is more appropriate in the 4 GHz band, and that a 1.25 MHz-based plan is more appropriate in the 6, 10, and 11 GHz bands.

79. Any Significant Alternative Minimizing Impact on Small Entities and Consistent With Stated Objectives. We have reduced burdens wherever possible. The regulatory burdens we have retained are necessary in order to ensure that the public receives the benefits of continued fixed microwave service in a prompt and efficient manner. We will continue to examine alternatives in the future with the objectives of eliminating unnecessary regulations and minimizing any significant economic impact on small entities. The Secretary shall send a copy of this Second Report and Order to the Chief Counsel for Advocacy of the Small Business Administration.

80. Accordingly, IT IS ORDERED that Parts 2, 21, 22, and 94 of the Commission's rules and Regulations ARE AMENDED as specified below, effective 90 days after publication in the Federal Register. This action is taken pursuant to Sections 4(i), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 303(c), 303(f), 303(g), and 303(r).

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

Appendix A-- RULE CHANGES

- I. Part 2 of Title 47 of the Code of Federal Regulations is amended as follows:

**PART 2 - FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS;
GENERAL RULES AND REGULATIONS**

1. The authority citation in Part 2 continues to read:

AUTHORITY: Sec. 4, 302, 303, and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154, 154(i), 302, 303, 303(r), and 307, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations is amended as follows:

- a. Add a primary allocation for the Private Operational-Fixed Microwave Service in column (6) of the 3700-4200 MHz band.
- b. Add a primary allocation for the Private Operational-Fixed Microwave Service in column (6) of the 5925-6425 MHz band.
- c. Add a primary allocation for the Domestic Public Fixed Services in column (6) of the 6525-6875 MHz band.
- d. Add a primary allocation for the Private Operational-Fixed Microwave Service in column (6) of the 10.55-10.60 GHz band.
- e. Add a primary allocation for the Private Operational-Fixed Microwave Service in column (6) of the 10.60-10.68 GHz band.
- f. Add a primary allocation for the Private Operational-Fixed Microwave Service in column (6) of the 10.7-11.7 GHz band.

§ 2.106 Table of Frequency Allocations

★			★		★	
International Table			United States Table		FCC use designators	
Region 1 Allocation MHz	Region 2 Allocation MHz	Region 3 Allocation MHz	Government Allocation MHz	Non-Government Allocation MHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
★			★		★	
	3700-4200 FIXED. FIXED-SATELLITE (space-to- Earth). MOBILE except aeronautical mobile. 787		3700-4200	3700-4200 FIXED. FIXED-SATELLITE (space-to-Earth). NG41	DOMESTIC PUBLIC FIXED(21). SATELLITE COMMUNICATIONS (25). PRIVATE OPERATIONAL- FIXED MICROWAVE(94).	
★			★		★	

International Table			United States Table		FCC use designators	
Region 1 Allocation MHz	Region 2 Allocation MHz	Region 3 Allocation MHz	Government Allocation MHz	Non-Government Allocation MHz	Rule Part (s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)

* * * * *

5925-7075	FIXED. FIXED-SATELLITE (Earth-to-space). MOBILE. 791 792A 809		5925-7125 791 809	5925-6425 FIXED. FIXED-SATELLITE (Earth-to-space). NG41	DOMESTIC PUBLIC FIXED(21). SATELLITE COMMUNICA- TIONS(25). PRIVATE OPERA- TIONAL-FIXED MICROWAVE(94).	
				6425-6525 FIXED-SATELLITE (Earth-to-space). MOBILE 791 809	AUXILIARY BROADCAST(74). CABLE TELEVI- SION(78). DOMESTIC PUBLIC FIXED(21). PRIVATE OPERA- TIONAL FIXED MICROWAVE(94).	
				6525-6875 FIXED. FIXED-SATELLITE (Earth-to-space). 792A 809	DOMESTIC PUBLIC FIXED(21). SATELLITE COMMUNICA- TIONS(25). PRIVATE OPERA- TIONAL-FIXED- MICROWAVE(94).	

* * * * *

International Table			United States Table		FCC use designators	
Region 1 Allocation MHz	Region 2 Allocation MHz	Region 3 Allocation MHz	Government Allocation MHz	Non-Government Allocation MHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	*	*	*	*	*	*
10.55-10.60	FIXED. MOBILE except aeronautical mobile. Radiolocation.		10.55-10.60	10.55-10.60 FIXED.	DOMESTIC PUBLIC FIXED(21). PRIVATE OPERA- TIONAL-FIXED MICROWAVE(94).	
10.60-10.68	EARTH EXPLORA- TION SATELLITE (passive). FIXED. MOBILE except aeronautical mobile. RADIO ASTRONOMY. SPACE RESEARCH (passive). Radiolocation. 831 832		10.60-10.68 EARTH EXPLORATION- SATELLITE (passive). SPACE RESEARCH (passive). US265 US277	10.60-10.68 EARTH EXPLORATION- SATELLITE (passive). FIXED. SPACE RESEARCH (passive). US265 US277	DOMESTIC PUBLIC FIXED(21). PRIVATE OPERA- TIONAL FIXED MICROWAVE(94).	
	*	*	*	*	*	*

International Table			United States Table		FCC use designators	
Region 1 Allocation MHz	Region 2 Allocation MHz	Region 3 Allocation MHz	Government Allocation MHz	Non-Government Allocation MHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	*	*	*	*		
10.7-11.7 FIXED. FIXED-SATELLITE (space-to-Earth) (Earth-to-space). MOBILE except aeronautical mobile. 792A 835	10.7-11.7 FIXED. FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile. 792A		10.7-11.7 US211	10.7-11.7 FIXED. FIXED SATELLITE (space-to-Earth). 792A US211 NG41 NG104	DOMESTIC PUBLIC FIXED(21). PRIVATE OPERATIONAL-FIXED MICROWAVE(94).	
	*	*	*	*		

II. Part 21 of Title 47 of the Code of Federal Regulations is amended as follows:

PART 21 - DOMESTIC PUBLIC FIXED RADIO SERVICES

1. The authority citation in Part 21 continues to read:

AUTHORITY: Secs. 1, 2, 4, 201-205, 208, 215, 218, 303, 307, 313, 314, 403, 404, 410, 602; 48 Stat. as amended, 1064, 1066, 1070-1073, 1076, 1077, 1080, 1082, 1083, 1087, 1094, 1098, 1102; 47 U.S.C. 151, 154, 201-205, 208, 215, 218, 303, 307, 313, 314, 403, 404, 602; 47 U.S.C. 552.

2. Subpart C is amended by revising sections 21.100, 21.107, 21.108, 21.120, and 21.122 to read as follows:

Section 21.100 Frequencies.

* * * * *

(c) Frequency diversity transmission will not be authorized in these services in the absence of a factual showing that the required communications cannot practically be achieved by other means. Where frequency diversity is deemed to be justified on a protection channel basis, it shall be limited to one protection channel for the bands 3700-4200, 5925-6425, and 6525-6875 MHz, and a ratio of one protection channel for three working channels for the bands 10,550-10,680 and 10,700-11,700 MHz. In the bands 3700-4200, 5925-6425, and 6525-6875 MHz, no frequency diversity protection channel will be authorized unless there is a minimum of three working channels, except that where a substantial showing is made that a total of three working channels will be required within three years, a protection channel may be authorized simultaneously with the first working channel. A protection channel authorized under such exception will be subject to termination if applications for the third working channel are not filed within three years of the grant date of the applications for the first working channel. Where equipment employing digital modulation techniques with cross-polarized operation on the same frequency is used, the protection channel authorized under the above conditions may be considered to consist of both polarizations of the protection frequency where such is shown to be necessary.

(d)(1) * * *

(d)(2)(i)-(x) * * *

(d)(2)(xi) Interference protection criteria for fixed stations in the bands 3700-4200, 5925-6425, 6525-6875, 10,550-10,680, and 10,700-11,700 MHz are specified in Section 94.63.

(d)(2)(xii) Any frequency reserved by a licensee for future use in the bands 3700-4200, 5925-6425, 6525-6875, 10,550-10,680, and 10,700-11,700 MHz must be released for use by another licensee upon a showing by the latter that it requires an additional frequency and cannot coordinate one that is not reserved for future use.

Section 21.107 Transmitter power.

* * * * *

(b) The rated power of a transmitter employed in these radio services shall not exceed the values shown in the following tabulation:

Frequency band (MHz)	Maximum allowable transmitter power		Maximum allowable EIRP	
	Fixed (W)	Mobile (W)	Fixed (dBW)	Mobile (dBW)
512.0 to 2,110	20.0	20.0	(3)	.....
932.5 to 935.0	20.0	.....	+40	.....
941.5 to 944.0	20.0	.....	+40	.....
2,110 to 2,130	20.0	.....	.....	.....
2,150 to 2,160	(1)20.0	.....	+45	.....
2,160 to 2,180	(1)20.0	.....	.....	.....
2,500 to 2,686	(1)10.0	.....	.....	.....
2,686 to 2,690	0.25	.....	.....	.....
3,700 to 4,200	20.0	.....	+50	.....
5,925 to 6,425	20.0	.....	+55	.....
6,425 to 6,525	.....	20.0	.....	+35
6,525 to 6,875	10.0	.....	+50	.....
10,550 to 10,680	(4)10.0	.....	+50	.....
10,700 to 11,700	10.0	.....	+50	.....
12,200 to 13,250	10.0	10.0	.....	.....
17,700 to 18,600	10.0	.....	+55	.....
18,600 to 18,800	(2)10.0	.....	+35	.....
18,800 to 19,700	10.0	.....	+55	.....
21,200 to 23,600	10.0	.....	+50	.....
27,500 to 29,500	10.0	.....	+55	.....
31,000 to 31,300	0.05	0.05	.....	.....
38,600 to 40,000	10.0	1.5	+50	.....

Footnote (1) * * *

(2) The power delivered to the antenna is limited to -3 dBW.

(3) The EIRP of stations in the 932-935, 941.5-944, and 10,600-10,800 MHz bands must not exceed +40 dBW.

(4) The output power of a Digital Termination System nodal transmitter shall not exceed 0.5 watts per 250 KHz. The output power of a Digital Termination System user transmitter shall not exceed 0.04 watts per 250 KHz. The transmitter power in terms of the watts specified is the peak envelope power of the emission measured at the associated antenna input power. The operating power shall not exceed the authorized power by more than 10 percent of the authorized power in watts at any time.

* * * * *

Section 21.108 Directional antennas.

* * * *

(c) * * *

Antenna Standards										
Frequency(MHz)	Category	Maximum beam-width to 3 dB points (included angle in degrees)	Minimum antenna gain (dBi)	Minimum radiation suppression to angle in degrees from centerline of main beam in decibels						
				5° to 10°	10° to 15°	15° to 20°	20° to 30°	30° to 100°	100° to 140°	140° to 180°
932.5 to 935	A	14.0	n/a		6	11	14	17	20	24
941.5 to 944	B	20.0	n/a			6	10	13	15	20
2,500 to 4,200	A	n/a	36	23	29	33	36	42	55	55
	B	n/a	36	20	24	28	32	32	32	32
5,925 to 6,425 (5)	A	n/a	38	25	29	33	36	42	55	55
	B	n/a	38	21	25	29	32	35	39	45
5,925 to 6,425 (6)	A	n/a	38	25	29	33	36	42	55	55
	B	n/a	38	20	24	28	32	35	36	36
6,525 to 6,875 (5)	A	n/a	38	25	29	33	36	42	55	55
	B	n/a	38	21	25	29	32	35	35	39
6,525 to 6,875 (6)	A	1.5	n/a	26	29	32	34	38	41	49
	B	2.0	n/a	21	25	29	32	35	39	45
10,550 to 10,680 (4)	A	n/a	38	25	29	33	36	42	55	55
(5)	B	n/a	38	20	24	28	32	35	35	39
10,550 to 10,680 (6)	A	3.4	34	20	24	28	32	35	55	55
	B	3.4	34	20	24	28	32	35	35	39
10,565 to 10,615 (7)	n/a	360	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10,630 to 10,680 (7)	n/a	n/a	34	20	24	28	32	35	36	36
10,700 to 11,700 (5)	A	n/a	38	25	29	33	36	42	55	55
	B	n/a	38	20	24	28	32	35	36	36
17,700 to 18,820	A	n/a	38	25	29	33	36	42	55	55
	B	n/a	38	20	24	28	32	35	36	36
18,920 to 19,700 1	A	n/a	38	25	29	33	36	42	55	55
	B	n/a	38	20	24	28	32	35	36	36
21,200 to 23,600	A	n/a	38	25	29	33	36	42	55	55
	B	n/a	38	20	24	28	32	35	36	36
31,000 to 31,300 (2)	n/a	4.0	38	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(3)										
Above 31,300	A	n/a	38	25	29	33	36	42	55	55
	B	n/a	38	20	24	28	32	35	36	36

(1) Digital Termination User Station antennas in this band shall meet performance Standard B and have a minimum antenna gain of 34 dBi. The maximum beamwidth requirement does not apply to DTS User Stations. Digital Termination Nodal Stations need not comply with these standards.

(2) - (3) * * *

(4) Except for such antennas between 140° and 180° authorized or pending on January 1, 1989, in the band 10,550 to 10,565 MHz for which minimum radiation to suppression to angle (in degrees) from centerline of main beam is 36 decibels.

(5) These antenna standards apply to all point-to-point stations authorized after June 1, 1997. Existing licensees and pending applicants on that date are grandfathered and need not comply with these standards.

(6) These antenna standards apply to all point-to-point stations authorized on or before June 1, 1997.

(7) These antenna standards apply only to Digital Termination User Stations licensed, in operation, or applied for prior to July 15, 1993.

NOTE: Stations must employ an antenna that meets the performance standards for Category A, except that in areas not subject to frequency congestion, antennas meeting standards for Category B may be employed. Note, however, that the Commission may require the use of high performance antennas where interference problems can be resolved by the use of such antennas.

(d) * * *

(e) These limitations are necessary to minimize the probability of harmful interference to reception in the bands 5925-6875 on board geostationary space stations in the fixed-satellite service (Part 25).

(1) 5925 to 6875 MHz. * * *

(2) * * *

Section 21.120 Authorization of transmitters.

* * * * *

(e) After July 15, 1994, the manufacture (except for export) or importation of equipment employing digital modulation techniques in the 3700-4200, 5925-6425, 6525-6875, 10,550-10,680, and 10,700-11,700 MHz bands must meet the minimum payload capacity requirements of Section 21.122(a)(3).

Section 21.122 Microwave digital modulation.

(a) Microwave transmitters employing digital modulation techniques and operating below 15 GHz shall, with appropriate

multiplex equipment, comply with the following additional requirements:

(1) The bit rate, in bits per second, shall be equal to or greater than the bandwidth specified by the emission designator in Hertz (e.g., to be acceptable, equipment transmitting at a 20 Mb/s rate must not require a bandwidth of greater than 20 MHz), except the bandwidth used to calculate the minimum rate shall not include any authorized guard band.

(2) Equipment to be used for voice transmission placed in service, authorized, or applied for on or before June 1, 1997 in the 2110 to 2130 and 2160 to 2180 MHz bands shall be capable of satisfactory operation within the authorized bandwidth to encode at least 96 voice channels. Equipment placed in service, authorized, or applied for on or before June 1, 1997 in the 3700-4200, 5925-6425 (30 MHz bandwidth), and 10,700-11,700 MHz (30 and 40 MHz bandwidths) bands shall be capable of satisfactory operation within the authorized bandwidth to encode at least 1152 voice channels. These required loading levels may be reduced by a factor of 1/N provided that N transmitters may be operated satisfactorily, over the same radio path, within an authorized bandwidth less than, or equal to, the maximum authorizable bandwidth (e.g., the 1152 channel requirement may be reduced to 576 if two transmitters can be satisfactorily operated over the same path within the maximum bandwidth). Where type accepted equipment is designed to operate on the same frequency in a cross polarized configuration to meet the above capacity requirements, the Commission will require, at the time additional transmitters are authorized, that both polarizations of a frequency be used before a new frequency assignment is made, unless a single transmitter installation was found to be justified by the Commission at the time it authorized the first transmitter.

(3) The following capacity and loading requirements shall be met for equipment applied for, authorized, and placed in service after June 1, 1997 in the 3700-4200 MHz (4 GHz), 5925-6425 and 6525-6875 MHz (6 GHz), 10,550-10,680 MHz (10 GHz), and 10,700-11,700 MHz (11 GHz) bands:

Nominal Channel Bandwidth (MHz)	Minimum Payload Capacity (Mbits/s)	Minimum Traffic Loading Payload (as percent of payload capacity)	Typical Utilization*
0.400	1.54	n/a	1 DS-1
0.800	3.08	n/a	2 DS-1
1.25	3.08	n/a	2 DS-1
1.60	6.17	n/a	4 DS-1
2.50	6.17	n/a	4 DS-1
3.75	12.3	n/a	8 DS-1
5.0	18.5	n/a	12 DS-1
10.0	44.7	50**	1 DS-3/STS-1
20.0	89.4	50**	2 DS-3/STS-1

30.0 (11 GHz)	89.4	50**	2 DS-3/STS-1
30.0 (6 GHz)	134.1	50**	3 DS-3/STS-1
40.0	134.1	50**	3 DS-3/STS-1

* DS and STS refer to the number of voice circuits a channel can accommodate. 1 DS-1 = 24 voice circuits; 2 DS-1 = 48; 4 DS-1 = 96; 8 DS-1 = 192; 12 DS-1 = 288; 1 DS-3/STS-1 = 672; 2 DS-3/STS-1 = 1344; 3 DS-3/STS-1 = 2016.

** This loading requirement must be met within 30 months of licensing. If two transmitters simultaneously operate on the same frequency over the same path, the requirement is reduced to 25 percent.

(4) If a transmitter is authorized to operate in a bandwidth that is not listed in paragraph (a)(3) of this section, it shall meet the minimum payload capacity and traffic loading requirements of the next largest channel bandwidth listed in the table; e.g., if the authorized bandwidth is 3.5 MHz, the minimum payload capacity shall be 12.3 Mbits/s.

(5) Transmitters carrying digital motion video motion material are exempt from the requirements specified in paragraphs (a)(2) and (a)(3) of this section, provided that the minimum bit rate specified in paragraph (a)(1) is met. In the 6, 10, and 11 GHz bands, concatenation of multiple contiguous channels is permitted for channels of equal bandwidth on center frequencies, provided no other channels are available and the minimum payload capacity requirements are met.

* * * * *

3. Subpart G is amended by deleting section 21.507 and by revising sections 21.502, 21.503, and 21.506 to read as follows:

Section 21.502 Frequencies.

(a) Frequencies in the 17,700-19,700 MHz band are available for assignment for all DEMS applicants. Assignment will consist of a pair of channels as set out in paragraph (c) of this section plus internodal channels as set out in paragraph (d) of this section.

(b) Licensees may apply for an additional channel pair in an SMSA only when it is operating its previously authorized DTS at or near the expected capacity and the service to be provided will fully utilize all spectrum requested.

(c) Digital Termination Systems assignments shall be made according to the following plan, except that systems licensed, in operation, or applied for in the 10,565-10,615 and 10,630-10,680 MHz bands prior to July 15, 1993 are permitted to use frequencies in those bands if they prior coordinate with 10 GHz point-to-point licensees:

Channel No.	Nodal station frequency band (MHz)	User station frequency band (MHz)
30.....	18,870-18,880	19,210-19,220
31.....	18,880-18,890	19,220-19,230
32.....	18,890-18,900	19,230-19,240
33.....	18,900-18,910	19,240-19,250
34.....	18,910-18,920	19,250-19,260

These channel pairs will be assigned in each SMSA and may be subdivided as desired by the licensee.

(d) Internodal link assignments are to be made in accordance with the provisions of Subpart I of Part 21, applying to point-to-point operations.

Section 21.503 Frequency stability.

The frequency stability of each Digital Termination Nodal Station transmitter authorized for this service in the 17,700-19,700 MHz band shall be $\pm 0.001\%$. The frequency stability of each Digital Termination User Station transmitter authorized for this service in this band shall be $\pm 0.003\%$.

Section 21.506 Transmitter power.

The transmitter power will be governed by Section 21.107 of this rule part. Further, each application shall contain an analysis demonstrating compliance with Section 21.107(a).

4. Subpart I is amended by revising sections 21.701 and 21.710 to read as follows:

Section 21.701 Frequencies.

(a) Frequencies in the following bands are available for assignment to fixed radio stations in the Point-to-Point Microwave Radio Service.

932.5-935 MHz	17	13,200-13,250 MHz	4
941.5-944 MHz	17 18	17,700-18,820 MHz	5 10 15
2,110-2,130 MHz	1 3 7 20	18,920-19,160 MHz	5 10 15
2,160-2,180 MHz	1 2 20 21	19,260-19,700 MHz	5 10 15
3,700-4,200 MHz	8 14	21,200-22,000 MHz	4 11 12 13
5,925-6,425 MHz	6 14	22,000-23,600 MHz	4 11 12
6,525-6,875 MHz	14	27,500-29,500 MHz	5
10,550-10,680 MHz	19	31,000-31,300 MHz	16
10,700-11,700 MHz	8 9 19	38,600-40,000 MHz	4

Footnotes 1-13 * * *

14 Frequencies in this band are shared with stations in the fixed-satellite and private-operational fixed microwave services.

Footnotes 15-18 * * *

19 Frequencies in this band are shared with stations in the private-operational fixed microwave service.

20 New facilities in these bands will be licensed only on a secondary basis. Facilities licensed or applied before January 16, 1992, are permitted to make modifications and minor extensions and retain their primary status.

21 Any authorization of additional stations to use the 2160-2162 MHz band for Multipoint Distribution Service applied for after January 16, 1992 shall be secondary to use of the band for emerging technology services.

(b) * * *

(c) * * *

(d) 3,700 to 4,200 MHz. 20 MHz maximum authorized bandwidth.

20 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
3710	3990
3730	4010
3750	3950
3770	3970
3790	4070
3810	4090
3830	4030
3850	4050
3870	4150
3890	4170
3910	4110
3930	4130
n/a	4190 1

1 This frequency may be assigned for unpaired use.

(e) 5,925 to 6,425 MHz. 30 MHz authorized bandwidth.

(1) 400 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5925.225	6177.100

5925.625	.....	6177.500
5926.050	.....	6177.925
5926.450	.....	6178.325
5926.875	.....	6178.750
5927.275	.....	6179.150
5927.725	.....	6179.600
5928.125	.....	6180.000
5928.550	.....	6180.425
5928.950	.....	6180.825
5929.375	.....	6181.250
5929.775	.....	6181.650
6168.350	.....	6420.225
6168.750	.....	6420.625
6169.175	.....	6421.050
6169.575	.....	6421.450
6170.000	.....	6421.875
6170.400	.....	6422.275
6170.850	.....	6422.725
6171.250	.....	6423.125
6171.675	.....	6423.550
6172.075	.....	6423.950
6172.500	.....	6424.375
6172.900	.....	6424.775

(2) 800 kHz bandwidth channels:

Transmit (receive) (MHz)		Receive (transmit) (MHz)
5925.425	.....	6177.300
5926.250	.....	6178.125
5927.075	.....	6178.950
5927.925	.....	6179.800
5928.750	.....	6180.625
5929.575	.....	6181.450
6168.550	.....	6420.425
6169.375	.....	6421.250
6170.200	.....	6422.075
6171.050	.....	6422.925
6171.875	.....	6423.750
6172.700	.....	6424.575

(3) 1.25 MHz bandwidth channels:

Transmit (receive) (MHz)		Receive (transmit) (MHz)
5925.625	.....	6177.500
5926.875	.....	6178.750
5928.125	.....	6180.000

5929.375	.....	6181.250
6108.893	.....	6360.933
6110.128	.....	6362.168
6111.364	.....	6363.404
6112.599	.....	6364.639
6113.834	.....	6365.874
6115.070	.....	6367.110
6116.305	.....	6368.345
6117.541	.....	6369.581
6118.776	.....	6370.816
6120.011	.....	6372.051
6121.247	.....	6373.287
6122.482	.....	6374.522
6123.718	.....	6375.758
6124.953	.....	6376.993
6126.189	.....	6378.229
6127.424	.....	6379.464
6128.659	.....	6380.699
6129.895	.....	6381.935
6131.130	.....	6383.170
6132.366	.....	6384.406
6133.601	.....	6385.641
6134.836	.....	6386.876
6136.072	.....	6388.112
6137.307	.....	6389.347
6138.543	.....	6390.583
6139.778	.....	6391.818
6141.014	.....	6393.054
6142.249	.....	6394.289
6143.484	.....	6395.524
6144.720	.....	6396.760
6145.955	.....	6397.995
6147.191	.....	6399.231
6148.426	.....	6400.466
6149.661	.....	6401.701
6150.897	.....	6402.937
6152.132	.....	6404.172
6153.368	.....	6405.408
6154.603	.....	6406.643
6155.839	.....	6407.879
6157.074	.....	6409.114
6158.309	.....	6410.349
6159.545	.....	6411.585
6160.780	.....	6412.820
6162.016	.....	6414.056
6163.251	.....	6415.291
6164.486	.....	6416.526
6165.722	.....	6417.762
6166.957	.....	6418.997
6168.750	.....	6420.625
6170.000	.....	6421.875
6171.250	.....	6423.125
6172.500	.....	6424.375
6173.750	1	n/a

6175.000	1	.....	n/a
6176.250	1	.....	n/a

1 - These frequencies may be assigned for unpaired use.

(4) 2.5 MHz bandwidth channels:

Transmit (receive) (MHz)		Receive (transmit) (MHz)
5926.250	.....	6178.125
5928.750	.....	6180.625
6109.510	.....	6361.550
6111.981	.....	6364.021
6114.452	.....	6366.492
6116.923	.....	6368.963
6119.394	.....	6371.434
6121.865	.....	6373.905
6124.335	.....	6376.375
6126.806	.....	6378.846
6129.277	.....	6381.317
6131.748	.....	6383.788
6134.219	.....	6386.259
6136.690	.....	6388.730
6139.160	.....	6391.200
6141.631	.....	6393.671
6144.102	.....	6396.142
6146.573	.....	6398.613
6149.044	.....	6401.084
6151.515	.....	6403.555
6153.985	.....	6406.025
6156.456	.....	6408.496
6158.927	.....	6410.967
6161.398	.....	6413.438
6163.869	.....	6415.909
6166.340	.....	6418.380
6169.375	.....	6421.250
6171.875	.....	6423.750
6175.625	1	n/a

1 - This frequency may be assigned for unpaired use.

(5) 3.75 MHz bandwidth channels:

Transmit (receive) (MHz)		Receive (transmit) (MHz)
6111.364	.....	6363.404
6116.305	.....	6368.345
6121.247	.....	6373.287

6126.189	.....	6378.229
6131.130	.....	6383.170
6136.072	.....	6388.112
6141.014	.....	6393.054
6145.955	.....	6397.995
6150.897	.....	6402.937
6155.839	.....	6407.879
6160.780	.....	6412.820
6165.722	.....	6417.762
6175.000	1	n/a

1 - This frequency may be assigned for unpaired use.

(6) 5 MHz bandwidth channels:

Transmit (receive) (MHz)		Receive (transmit) (MHz)
6110.75	.....	6362.79
6115.69	.....	6367.73
6120.63	.....	6372.67
6125.57	.....	6377.61
6130.51	.....	6382.55
6135.45	.....	6387.49
6140.40	.....	6392.44
6145.34	.....	6397.38
6150.28	.....	6402.32
6155.22	.....	6407.26
6160.16	.....	6412.20
6165.10	.....	6417.14

(7) 10 MHz bandwidth channels:

Transmit (receive) (MHz)		Receive (transmit) (MHz)
5935.32	.....	6187.36
5945.20	.....	6197.24
5955.08	.....	6207.12
5964.97	.....	6217.01
5974.85	.....	6226.89
5984.73	.....	6236.77
5994.62	.....	6246.66
6004.50	.....	6256.54
6014.38	.....	6266.42
6024.27	.....	6276.31
6034.15	.....	6286.19
6044.03	.....	6296.07
6053.92	.....	6305.96
6063.80	.....	6315.84

6073.68	.....	6325.72	
6083.57	.....	6335.61	
6093.45	.....	6345.49	
6103.33	.....	6355.37	
6113.22	1	6365.26	1
6123.10	1	6375.14	1
6132.98	1	6385.02	1
6142.87	1	6394.91	1
6152.75	1	6404.79	1
6162.63	1	6414.67	1

1 - Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

(8) 30 MHz bandwidth channels:

Transmit (receive) (MHz)		Receive (transmit) (MHz)	
5945.20	.....	6197.24	
5974.85	.....	6226.89	
6004.50	.....	6256.54	
6034.15	.....	6286.19	
6063.80	.....	6315.84	
6093.45	.....	6345.49	
6123.10	1	6375.14	1
6152.75	1	6404.79	1

1 - Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

(f) 6,525 to 6,875 MHz. 10 MHz authorized bandwidth.

(1) 400 kHz bandwidth channels

Transmit (receive) (MHz)		Receive (transmit) (MHz)	
6525.225	.....	6870.225	
6525.625	.....	6870.625	
6526.050	.....	6871.050	
6526.450	.....	6871.450	
6526.875	.....	6871.875	
6527.275	.....	6872.275	
6527.725	.....	6872.725	
6528.125	.....	6873.125	
6528.550	.....	6873.550	
6528.950	.....	6873.950	

6529.375	.....	6874.375
6529.775	.....	6874.775

(2) 800 kHz bandwidth channels:

Transmit (receive) (MHz)		Receive (transmit) (MHz)
6525.425	.....	6870.425
6526.250	.....	6871.250
6527.075	.....	6872.075
6527.925	.....	6872.925
6528.750	.....	6873.750
6529.575	.....	6874.575

(3) 1.25 MHz bandwidth channels:

Transmit (receive) (MHz)		Receive (transmit) (MHz)	
6525.625	.....	6870.625	
6526.875	.....	6871.875	
6528.125	.....	6873.125	
6529.375	.....	6874.375	
6540.625	1	6718.125	1
6541.875	1	6719.375	1
6543.125	1	6713.125	1
6544.375	1	6714.375	1
6545.625	1	6715.625	1
6546.875	1	6716.875	1
6548.125	.....	6728.125	
6549.375	.....	6729.375	
6550.625	.....	6730.625	
6551.875	.....	6731.875	
6553.125	1	6723.125	1
6554.375	1	6724.375	1
6555.625	1	6725.625	1
6556.875	1	6726.875	1
6558.125	.....	6738.125	
6559.375	.....	6739.375	
6560.625	.....	6740.625	
6561.875	.....	6741.875	
6563.125	.....	6733.125	
6564.375	.....	6734.375	
6565.625	.....	6735.625	
6566.875	.....	6736.875	
6568.125	1	6720.625	1
6569.375	1	6721.875	1
6580.625	1	6868.125	1
6581.875	1	6869.375	1

6583.125	.....	6743.125
6584.375	.....	6744.375
6585.625	.....	6745.625
6586.875	.....	6746.875
6588.125	.....	6748.125
6589.375	.....	6749.375
6590.625	.....	6750.625
6591.875	.....	6751.875
6593.125	.....	6753.125
6594.375	.....	6754.375
6595.625	.....	6755.625
6596.875	.....	6756.875
6598.125	.....	6758.125
6599.375	.....	6759.375
6600.625	.....	6760.625
6601.875	.....	6761.875
6603.125	.....	6763.125
6604.375	.....	6764.375
6605.625	.....	6765.625
6606.875	.....	6766.875
6608.125	.....	6768.125
6609.375	.....	6769.375
6610.625	.....	6770.625
6611.875	.....	6771.875
6613.125	.....	6773.125
6614.375	.....	6774.375
6615.625	.....	6775.625
6616.875	.....	6776.875
6618.125	.....	6778.125
6619.375	.....	6779.375
6620.625	.....	6780.625
6621.875	.....	6781.875
6623.125	.....	6783.125
6624.375	.....	6784.375
6625.625	.....	6785.625
6626.875	.....	6786.875
6628.125	.....	6788.125
6629.375	.....	6789.375
6630.625	.....	6790.625
6631.875	.....	6791.875
6633.125	.....	6793.125
6634.375	.....	6794.375
6635.625	.....	6795.625
6636.875	.....	6796.875
6638.125	.....	6798.125
6639.375	.....	6799.375
6640.625	.....	6800.625
6641.875	.....	6801.875
6643.125	.....	6803.125
6644.375	.....	6804.375
6645.625	.....	6805.625
6646.875	.....	6806.875
6648.125	.....	6808.125
6649.375	.....	6809.375

6650.625	.....	6810.625	
6651.875	.....	6811.875	
6653.125	.....	6813.125	
6654.375	.....	6814.375	
6655.625	.....	6815.625	
6656.875	.....	6816.875	
6658.125	.....	6818.125	
6659.375	.....	6819.375	
6660.625	.....	6820.625	
6661.875	.....	6821.875	
6663.125	.....	6823.125	
6664.375	.....	6824.375	
6665.625	.....	6825.625	
6666.875	.....	6826.875	
6668.125	.....	6828.125	
6669.375	.....	6829.375	
6670.625	.....	6830.625	
6671.875	.....	6831.875	
6673.125	.....	6833.125	
6674.375	.....	6834.375	
6675.625	.....	6835.625	
6676.875	.....	6836.875	
6678.125	.....	6838.125	
6679.375	.....	6839.375	
6680.625	.....	6840.625	
6681.875	.....	6841.875	
6683.125	.....	6843.125	
6684.375	.....	6844.375	
6685.625	.....	6845.625	
6686.875	.....	6846.875	
6688.125	.....	6848.125	
6689.375	.....	6849.375	
6690.625	.....	6850.625	
6691.875	.....	6851.875	
6693.125	.....	6853.125	
6694.375	.....	6854.375	
6695.625	.....	6855.625	
6696.875	.....	6856.875	
6698.125	.....	6858.125	
6699.375	.....	6859.375	
6700.625	.....	6860.625	
6701.875	.....	6861.875	
6703.125	.....	6863.125	
6704.375	.....	6864.375	
6705.625	.....	6865.625	
6706.875	.....	6866.875	
6708.125	1	6710.625	1
6709.375	1	6711.875	1

1 - These frequencies may be assigned for unpaired use.

(4) 2.5 MHz bandwidth channels:

Transmit (receive) (MHz)		Receive (transmit) (MHz)
6526.25	.....	6871.25
6528.75	.....	6873.75
6541.25	1	6718.75 1
6543.75	1	6713.75 1
6546.25	1	6716.25 1
6548.75	.....	6728.75
6551.25	.....	6731.25
6553.75	1	6723.75 1
6556.25	1	6726.25 1
6558.75	.....	6738.75
6561.25	.....	6741.25
6563.75	.....	6733.75
6566.25	.....	6736.25
6568.75	1	6721.25 1
6581.25	1	6868.75 1
6583.75	.....	6743.75
6586.25	.....	6746.25
6588.75	.....	6748.75
6591.25	.....	6751.25
6593.75	.....	6753.75
6596.25	.....	6756.25
6598.75	.....	6758.75
6601.25	.....	6761.25
6603.75	.....	6763.75
6606.25	.....	6766.25
6608.75	.....	6768.75
6611.25	.....	6771.25
6613.75	.....	6773.75
6616.25	.....	6776.25
6618.75	.....	6778.75
6621.25	.....	6781.25
6623.75	.....	6783.75
6626.25	.....	6786.25
6628.75	.....	6788.75
6631.25	.....	6791.25
6633.75	.....	6793.75
6636.25	.....	6796.25
6638.75	.....	6798.75
6641.25	.....	6801.25
6643.75	.....	6803.75
6646.25	.....	6806.25
6648.75	.....	6808.75
6651.25	.....	6811.25
6653.75	.....	6813.75
6656.25	.....	6816.25
6658.75	.....	6818.75
6661.25	.....	6821.25